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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 966,841	09 27 2001	Thomas P. Glenn	M-9225 US	4983

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EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 05 21 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,841

Applicant(s)

GLENN ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) 5-7, 10, 24 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8, 9, 25-30 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/31/03 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because "the metal terminals 24 do not show a cross-hatching of metal coat on sidewall of posts 18. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "checkerboard pattern, claim 1, line 3" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-4, and 8-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification is silent regarding "checkerboard pattern" claim 1, line 3.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 8, 25-30, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Goldfarb (U. S. Patent 4,654,472).

As best understood to claims 1, 3, Goldfarb discloses an integrated circuit package (10-figure 1a, column 3, line 51) as shown in figures 1-3 comprising:

a molded plastic body (11, 12, column 3, lines 51-52);

a plurality of plastic posts (14, column 3, line 53) arranged in a checkerboard pattern (54, column 5, line 10), each said post extending integrally from said body (base 12);

a plurality of electrically separate metal terminals (18-figure 1, column 3, line 62) coating a sidewall of at least one of said posts;

a plurality of electrically conductive paths (17) each electrically coupled to at least one of said metal terminal; and

an integrated circuit (chip 32-figure 1c) including a plurality of bond pads (38, column 4, line 21), said integrated circuit (32) mounted on said body (11) and electrically coupled to at least some of said paths through said bond pads (see figure 1).

As to claim 2, Goldfarb discloses an integrated circuit package as shown in figures 1-2 wherein a total number of said posts is less than a total number of said bond pads.

As to claim 4, Goldfarb discloses an integrated circuit package as shown in figures 1-3 wherein a shape of at least some of said posts comprises a cylinder (column 3, line 55).

As to claim 8, Goldfarb discloses an integrated circuit package as shown in figures 1-3 further comprising a plurality of bond wires (23, 25, column 4, line 11) each electrically coupled between said bond pads (38) and at least some of said paths.

As to claim 25, Goldfarb discloses an integrated circuit package (10) as shown in figures 1-3 comprising:

- a plastic body (11, 12) with a plurality of plastic posts (14; 35) each extending integrally from said body (column 3, lines 53-54), each said post having a plurality of separate metal layers (18) coated on a sidewall of the post; metal traces (34) overlying the plastic body;

- metal vias (16; 29) extending through the plastic body, with each via being electrically coupled between at least one said trace and one said metal layer; and

- an integrated circuit (32) coupled to said body (11, 12), wherein the integrated circuit is electrically coupled to at least two of the separate metal layers (18) of each of at least two of the posts (14, 35) through some of said metal traces and said vias.

As to claim 26, Goldfarb discloses an integrated circuit package as shown in figures 1-3 wherein the integrated circuit (32) includes a plurality of bond pads (38) each electrically coupled to one of said metal layers, and a total number of said posts is less than a total number of said bond pads.

As to claim 27, Goldfarb discloses an integrated circuit package as shown in figures 1-3 wherein said posts are arranged in a checkerboard pattern (54-figure 3).

As to claim 28, Goldfarb discloses an integrated circuit package as shown in figures 1-3 wherein a shape of at least some of said posts comprises a cylinder (column 3, line 55).

As to claims 29-30, Goldfarb discloses an integrated circuit package (10) as shown in figures 1-3 comprising:

a plastic body (11, 12) with a plurality of plastic posts (14) each extending integrally from said body (column 3, lines 53-54), each said post having a plurality of separate metal layers (18) coated on a sidewall of the post;

an integrated circuit (32) coupled to said body (base 12), wherein the integrated circuit is electrically coupled to at least two of the separate metal layers (18) of each of at least two of the posts (14).

As to claim 32, Goldfarb discloses an integrated circuit package as shown in figures 1-3 wherein the integrated circuit (32) includes a plurality of bond pads (38) each electrically coupled to one of said metal layers (18), and a total number of said posts (14, 35) is less than a total number of said bond pads (38).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goldfarb (U. S. Patent 4,654,472) in view of Barreto et al. (U. S. Patent 5,220,489).

As to claim 9, Goldfarb discloses all of the limitations of the claimed invention, except for an encapsulant material covering at least a part of said integrated circuit.

Lin shows an encapsulant material (33) covering at least a part of an IC chip discloses in figures 1-3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an encapsulant material covering a part of an IC chip as taught by Barreto to employ the package of Goldfarb in order to prevent a moisture, protect, and reduce heat of an IC chip mounted on board.

Response to Arguments

9. Applicant's arguments filed 01/31/03 have been fully considered but they are not persuasive.

Applicant argues:

(a) Goldfarb does not show "post arranged in a checkerboard pattern"

(b) Goldfarb does not have "posts in a checkerboard arrangement" and "interlocking of the posts of the package with other posts"

(d) Goldfarb does not show "metal traces overlying the plastic body" and "a plurality of metal layers coated on a sidewall of the post"

Examiner disagrees.

Response to argument (a), Goldfarb clearly shows posts arranged in a checkerboard pattern (pad 54) disclosed in figures 3a-3c, and further, this limitation is proper rejected under 112, first paragraph, see part (4).

Response to argument (b), these limitations are not claimed in the invention of claim 3; therefore, examiner does not have to respond.

Response to argument (d), Goldfarb clearly shows in figure 1c that conductors (34) or traces electrical connected to a chip (32) by wires (23), and overlying a plastic body (12). Further, Goldfarb teaches in figure 1a that metal layers (18) coated on a sidewall of the post (14).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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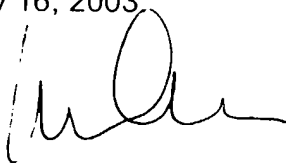
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
May 16, 2003

A handwritten signature in black ink, appearing to be 'Tuan T Dinh', written over the typed name and date.